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SCIENCE.

FRIDAY, JUNE 26, 1885.

COMMENT AND CRITICISM.

THE BILL TO ESTABLISH a board of registration in medicine and surgery for Massachusetts was rejected in the house of representatives, in the latter days of the session, by a very decided majority. A brief statement of the reasons for this action is interesting, inasmuch as the same body had already created a commission for the regulation of pharmacy. The law proposed,—substantially the same as that so successfully enforced in Illinois and West Virginia,—would, with a proper machinery for its execution, have been a benefit to the community. The measure did not, however, excite a very warm interest in the medical profession as a whole, was opposed in some important details by prominent members of one of the great medical societies, and at no time attracted sufficiently the attention of the public, with the exception of that loud-mouthed portion that naturally belongs to the quack and charlatan. The men who appeared in favor of legislation were those most competent to testify to the needs of it,—the honest practitioners of medicine. The ordinary legislator, therefore, looked upon the proposed law as a privilege desired by a class; and when he found that it was advocated by that class mainly, from his limited point of view, not unreasonably perhaps, voted against the measure. With the warning furnished by this year's experience, it is safe to assume that the medical profession will insist that the public, which is alone concerned, shall hereafter take the lead in any effort to procure legislation for the regulation of the practice of medicine.

THE ESTABLISHMENT of a botanic garden in Montreal may now be considered an assured fact. The organization has been completed by the formation of a corporation, from whom

there is elected a board of management of five persons, one of whom is the director of the garden, in the person of Professor Penhallow. With a grant from the provincial government for preliminary work, land from the city, and the hearty good will and co-operation of the citizens, the garden will without doubt prove successful. The site chosen for the garden is on Mount Royal, and embraces about seventy-five acres of land well adapted for the purposes of both a garden and an arboretum. A large stone building, now on the grounds, will be used as the offices, library, museum, etc., and around this the plant-houses will be built.

IN ORDER THAT composite photographs may be of use as a scientific method for revealing the traits common to some group, it seems necessary that each step of the process employed should be subjected to careful experiment. The presumption is, that any change in the order in which the negatives are used in making the composite will have no perceptible effect in altering its appearance. Yet this should be a matter of actual experiment; and, should composites so obtained not be substantially identical, the conditions for such identity must be found, before we can feel much certainty that a composite exhibits the essential features of the group in question, as distinguished from such as might be termed accidental. It might happen, for instance, that undue prominence had been given to part of a group by variation in the intensity of the illumination during the printing, or other circumstances might interfere with the accuracy of the representation.

But a more serious question respecting the truth to nature, of the average expressed by the composite, is contained in the query, whether composites of a given group made by different photographers would be recognizably the same picture, and whether they differ more widely

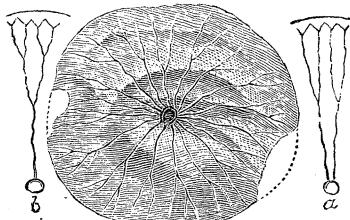
or less widely than single photographs do under similar conditions. The composites ought to be almost wholly independent of fortuitous circumstances such as this; and, although the separate negatives of the same individual might exhibit considerable deviations from each other for one reason or another, yet such deviations should have no cumulative effect in the composite, but be in effect obliterated. If, however, there is, as there well may be, some personal peculiarity in the adjustments of a photographer, his composite will necessarily bear the impress of this mannerism, and furnish a kind of personal error, which can perhaps be only eliminated by making a composite from a number of composites of the same group, each taken by a different person.

LETTERS TO THE EDITOR.

A modern type of plant in the cretaceous.

THE genus Brasenice, or *Hydropeltis*, is represented in eastern North America by a single species, *B. peltata*, Pursh (*Hydropeltis purpurea*, Michaux), which, according to Gray, is also a native of Puget Sound, Japan, Australia, and India. A form so widely distributed may be expected to have been early introduced, so that we need not be surprised to find it occurring along with the earlier forms of exogenous life in the cretaceous of our north-west.

The specimens to which this note refers were obtained in the beds of the Belly-River series of the



BRASENICE ANTIQUA, UPPER CRETACEOUS, SOUTH SASKATCHEWAN RIVER. LEAF NAT. SIZE. *a, b*, DIAGRAMS OF VENATION, SLIGHTLY ENLARGED.

Canadian survey, near Medicine Hat. These beds are upper cretaceous, and hold fossils, some of which resemble those of the Laramie group, others those of the Pierre group. They contain workable beds of lignitic coal; and the specimens in question were found in nodular clay ironstone, associated with one of the coal-beds worked in the 'Lawson mine.'

A specimen of this interesting fossil, obtained, I believe, from Mr. Lawson, the manager of the mine, was kindly given to me last year by Mr. J. R. Byron, one of the members of the British association; and additional specimens, some of them very perfect, were afterwards collected by Mr. T. C. Weston of the geological survey. They resemble very closely the leaves

of the modern species, differing only in their generally smaller size and somewhat less elliptical form, and slightly in the venation, the primary veins being more numerous, or about eighteen in number, while fourteen is a common number in the modern species. These differences may indicate merely a varietal form; but I have thought it best to designate the species or variety by the name *B. antiqua*. Associated with these leaves, in the same bed, are some other aquatics, notably *Pistia corrugata* (Lesq.) and *Lemna scutata* (Dn), both species of the Laramie; and *Platanus nobilis* of Newberry (*Aralia notata* of Lesquereux), which, though apparently regarded in the United States as miocene, is certainly in Canada characteristically Laramie. There is also a new species of *Populus* — *P. latidentata* (Dn) — closely allied to the modern *P. grandidentata*, and an *Acer* (*A. saskatchewanense*), whose leaves resemble small or immature leaves of *A. dasycarpum*. A species of *Sequoia* also occurs, probably *S. Reichenbachii*. Though all these plants have a very modern aspect, they are unquestionably cretaceous; and I have myself assisted at the disinterment of a dinosaur of the genus *Diplodocus* from beds overlying those in which the leaves occur. These facts furnish another instance of that modern aspect of the upper cretaceous flora on which I have elsewhere insisted, and which has been a fertile source of error with reference to the age of beds of this formation in the west. It is interesting to note that beds of this age in western Canada contain the modern *Onoclea sensibilis* of America, along with *Davallia tenuifolia*, also modern, but now Asiatic.

J. WM. DAWSON.

Lateral movements of the earth's crust.

While observations are being made for the purpose of investigating 'variations of latitude,' it is not desirable that the U. S. coast and geodetic survey should make simultaneous observations with a view to discover, if possible, whether or not places along our coasts are suffering changes of latitude or longitude, or both, due to lateral movements of the earth's crust?

If it is true that during geological history large lateral movements of the earth's crust have taken place, and if such changes are still going on, it would seem inevitable, that, in regions where lateral displacements are taking place, landmarks should suffer a change of latitude or longitude, or of both, according to the direction of yielding to lateral pressure, and that places located upon regions suffering compression or folding should be moved, to some extent, bodily toward places in adjoining regions, toward which the movements take place, but which are not themselves undergoing displacements.

Since vertical movements of the earth's crust are taking place at measurable rates, and since, in the past, lateral movements appear to have exceeded the vertical, it might be expected that lateral movements are now taking place at measurable rates. Of course, if the superficial strata are not involved in these movements, the deeper strata only yielding, surface landmarks could not reveal the movement; but in this case, and in case folds of the superficial strata along our coasts are in process of evolution, it would seem that such changes might be discovered by sinking deep vertical shafts at intervals along lines normal to the coast. These carefully surveyed at intervals during one or two centuries, it would seem, should show a measurable warping or tilting if such movements are going on.

F. H. KING.